

## **Remarks**

Currently pending in the application are claims 1-5, 13-15, 20, 22, 24 and 26-38. The Examiner has allowed claims 1-5, 20, 22, 24, 35 and 37. Applicants respectfully request entry of the amendments, reconsideration by the Examiner, and advancement of the application to allowance.

## **Objections**

The Examiner has objected to claim 14 because it depends on a cancelled claim. Applicants have withdrawn claim 14 from the present application, thereby rendering the objection moot.

## **Rejections under 35 U.S.C. § 112, first and second paragraph**

The Examiner rejected claims 13, 15, 30, 32, 34, 36, and 38 under 35 U.S.C. § 112, first and second paragraphs, as failing to satisfy the written description requirement and for being indefinite. In particular, the Examiner objected to the term “index” and states that the term is not clearly defined in the specification.

Applicants respectfully submit that the meaning of the term “index” is clear from the specification, and, therefore, the term is not indefinite. For example, on page 2, lines 4-9, “index” is used to describe the isocyanate to polyol ratio. Furthermore, the term “index” is used consistently throughout the specification and Examples to describe the isocyanate to polyol ratio. Nowhere in the specification does applicant use the term “index” as refractive index or heterogeneity index as the Examiner suggests. Moreover, a person skilled in the art of mixing activated isocyanate-based reaction systems would

immediately recognize the meaning of the term “index” as it is used in the present application and claims.

However, in order to facilitate prosecution of the present application, applicants have amended claims 13, 15, 30, and 36 to particularly point out and distinctly claim the subject matter covered by the claims and to convey to one skilled in the art that applicants had possession of the claimed invention. Support for the amendment can be found throughout the specification, for example, on page 12, line 14. No new matter is introduced by the amendment. In view of the amendment, applicants respectfully request that the rejection of claims 13, 15, 30, 32, 34, 36, and 38 under 35 U.S.C. § 112, first and second paragraphs, be withdrawn.

#### **Rejections under 35 U.S.C. § 103**

The Examiner rejected claims 26-29 and 31-32 under 35 U.S.C. § 103(a) as being obvious over Ishida (U.S. Pat. No. 5,294,461) in view of Brink et al. (U.S. Pat. No. 6,043,313). Applicants respectfully suggest that U.S. Pat. Nos. 5,294,461 ('461) and 6,043,313 ('313), alone or in combination, neither teach nor suggest a pultrusion process for producing a cured fiber reinforced composite as recited in the rejected claims of the present application.

To establish a *prima facie* case of obviousness, the USPTO must satisfy three requirements. First, the prior art relied upon, coupled with the knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated one of ordinary skill in the art to modify a reference or combine references. Second, the proposed modification must have had a

reasonable expectation of success. Finally, the prior art reference or combination of references must teach or suggest all the limitations of the claims. See MPEP §2142; *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Applicants respectfully submit that the Examiner has not met the criteria for establishing a *prima facie* case of obviousness.

Applicants respectfully submit that none of the references directly teach or suggest modifications to their disclosures to arrive at a pultrusion process as claimed in independent claims 26 and 27 of the present application. In particular, none of the references teach or suggest modifications to their disclosures to arrive at a pultrusion process in which a polyisocyanate, a polyol and reinforcing fibers are fed to an impregnation die where substantial polymerization occurs, as is claimed in independent claims 26 and 27 of the present application. In fact, the '461 patent teaches away from a limitation of the instant invention, namely that substantial polymerization of the reaction mixture occurs within the impregnation die. Specifically, the '461 patent states that no significant polymerization takes place in the impregnation die. *See column 4, lines 19-21.*

Moreover, there is no motivation to combine the references because the '461 and '313 patents are directed to different reaction systems. The '461 patent's teachings are directed to a reactive pultrusion process. In comparison, the '313 patent discloses a composite made by melt mixing a polymer having an isocyanate reactive group that can react with an isocyanate, a pre-formed thermoplastic polyurethane and a reinforcing fiber. The '313 patent mentions in passing that the polymer composite can be produced

by pultrusion. However, it does not suggest that the polymer composite can be produced by reactive pultrusion.

Furthermore, there is no reasonable expectation that that the pultrusion process in claims 26 and 27 of the present application would be successful based on modifying the disclosures in the cited patents. The '313 patent is directed to melt mixing, and briefly mentions that the polymer composite may be produced by pultrusion. However, pultrusion is used to shape or form the polymer composite; none of the elements used in producing the polymer composite (polymer, pre-formed thermoplastic polyurethane, reinforcing fiber) are chemically reacted in an impregnation die during pultrusion like the polyisocyanate and polyol are in claims 26 and 27 of the present application.

Finally, none of the references, alone or in combination, teach or suggest all the claim limitations as recited in the claims of the present application. In particular, none of the references, alone or in combination, teach or suggest a pultrusion process in which substantial polymerization occurs within an impregnation die as claimed in claims 26 and 27 of the present application. As discussed above, the '461 patent actually teaches away from such limitation. *See column 4, lines 19-21.*

Accordingly, for the foregoing reasons, applicants respectfully submit that independent claims 26 and 27 are not obvious over Ishida in view of Brink et al. As the other rejected claims all ultimately depend from claim 27, such claims are also not obvious over Ishida in view of Brink et al. for the same reason. Therefore, applicants respectfully request that the rejection of independent claims 26 and 27 and the rejected claims that depend therefrom be withdrawn.

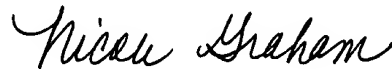
## Conclusion

In view of the foregoing remarks, Applicant respectfully submits that all pending claims are in condition for allowance, and respectfully request issuance of a Notice of Allowance directed towards claims 1-5, 13, 15, 20, 22, 24 and 26-38. If a telephone conference would expedite the processing of this application, the Examiner is requested to contact the undersigned at (512) 483-0985.

Should any fee be due in connection with the filing of this document, the Commissioner for Patents is hereby authorized to deduct said fee from Huntsman Corporation Deposit Account No. 08-3442.

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Respectfully submitted,



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